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ENGINEERING DRAWINGS AND DATA

THE NEW CROTON Aqueduct

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1885.

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ENGINEERING DRAWINGS AND DATA.

PART I.

CONTRACT DRAWINGS OF THE NEW CROTON AQUEDUCT

FROM CROTON DAM TO HARLEM RIVER.

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Also, Table of Bids and Prices.

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BIDS AND PRICES.

Bids on New Croton Aqueduct—Opened December 8, 1884.

NAMES.	SEC. A.	No.	SEC. B.	No.	SEC. 9.	No.	S c. 8.	No.	SEC. 7.	No.	SEC. 6.	No.	SEC. 5.	No.	SEC. 4.	No.	SEC. 3.	No.	SEC. 2.	No.	TOTALS.
Arnold, Gere & Stevens	1,296,630	10	1,376,302	10	1,667,700	12	1,420,020	9	.....	....	674,105	9	808,385	7	.....	....	.....	9	.....	....	5,760,652
Bailey, Dan'l E	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	1,945,600	....	.....	....	1,945,600
Brown, Howard & Co	1,053,650	2	1,159,687	2	1,340,862	2	1,071,430	1	1,301,660	1	599,405	4	726,975	3	1,518,475	1	1,398,050	1	1,653,655	1	11,814,849
Beekwith, Quackenbush & Co	1,151,540	6	1,243,432	3	1,496,725	4	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	3,891,707
Clark, Heman	1,051,675	1	1,096,065	1	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	2,147,740
Collins & Rider	1,146,090	4	1,243,761	4	1,501,100	6	1,282,225	3	1,527,065	3	652,240	6	799,455	6	1,756,088	5	1,677,730	4	1,952,200	5	13,537,953
Dowdney Abraham	1,146,015	3	1,276,386	6	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	2,422,431
Del Genovese, Virgilio	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	1,733,723	6	.....	....	1,733,723
Dickinson, P. P	.....	....	.....	....	1,418,904	3	.....	....	.....	....	592,875	2	731,365	4	.....	....	.....	....	.....	....	2,743,144
Douglass, Daizell & Douglass*	1,209,058	8	1,315,576	9	1,589,407	8	1,395,759	6	1,620,360	5	744,965	13	865,325	9	1,794,841	....	.....	....	.....	....	10,505,291
Dowling & Kennedy	.....	....	.....	....	1,499,487	5	.....	....	.....	....	658,450	7	.....	....	.....	....	.....	....	.....	....	2,157,937
Duffy, Edward	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	2,286,750	8	2,286,750
Malone, McGrann & Co	.....	....	.....	....	.....	....	.....	....	.....	....	596,500	3	725,045	2	1,637,430	3	1,558,710	3	1,744,050	3	6,291,735
McQuade, John	1,307,652	12	1,413,768	13	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	2,721,420
O'Brien & Clark	.....	....	.....	....	1,333,237	1	1,157,285	2	1,376,765	2	578,140	1	701,210	1	1,529,757	2	1,486,700	2	1,721,500	2	9 893,594
Phelps, H. W	.....	....	.....	....	.....	....	1,428,360	10	1,696,061	9	672,115	8	.....	....	.....	....	.....	....	.....	....	3,793,536
Phelan & Westbrook	.....	....	.....	....	.....	....	.....	....	.....	....	613,605	5	.....	....	.....	....	.....	....	.....	....	613,605
Swift & McNamee	.....	....	.....	....	1,561,000	7	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	1,561,000
Smith & Beard	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	1,184,585	13	1,907,725	9	.....	....	.....	....	3,092,310
Smith, Hamilton, Jr.**	1,288,760	9	1,403,855	12	1,741,375	14	1,518,515	11	1,773,200	10	796,525	14	984,700	11	1,941,925	10	1,929,200	8	2,085,050	7	15,463,105
Smith & Brown	.....	....	.....	....	1,651,212	11	1,391,190	8	1,644,125	6	716,700	11	873,725	10	1,879,275	8	.....	....	.....	....	8,156,227
Smith, Rutter & Ripley***	1,304,285	11	1,397,560	11	1,674,400	13	1,388,965	7	1,648,535	7	732,725	12	.....	....	.....	....	.....	....	.....	....	8,146,470
Soule, Howard	1,308,072	13	1,304,130	7	1,623,000	10	1,344,140	4	1,597,435	4	675,185	10	821,620	8	1,771,195	6	1,689,005	5	1,840,905	4	13,974,087
Tierney, Miles	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	782,850	5	1,660,282	4	.....	....	.....	....	2,443,132
Ward, Mackin & Co	1,148,860	5	1,305,440	8	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	2,454,300
Weber & Wendt†	1,157,180	7	1,251,845	5	1,594,580	9	1,361,885	5	1,664,680	8	825,510	15	991,400	12	2,108,756	11	1,757,240	7	1,971,275	6	14,684,311

* Will accept from one to four sections. ** Will only accept for whole work. *** Will not accept a contract except for four consecutive sections. † Will accept a contract for any two contiguous sections.

Details of Bids on Section 4 New Croton Aqueduct, Opened December 8, 1884. (See Note).

SECTION 4.	Brown Howard & Co.	O'Brien & Clark.	Malone, McGrann & Co.	Miles Tierney.	Collins & Rider.	Howard Soule.	Douglass, Daizell & Douglass.	Smith & Brown.	Smith & Beard.	Hamilton Smith, Jr.	Weber & Wendt.	Average of all bids.
a 37,000 c. y. Rock excav. in open trench	2.00	1.75	2.00	2.50	2.00	2.00	2.15	3.00	4.00	2.00	5.00	2.58
b 82,000 c. y. Earth excav. in open trench	90	80	65	1.00	1.30	1.30	88	1.75	1.00	80	3.70	1.28
c 7,000 c. y. Soiling	75	40	60	50	80	1.00	75	75	1.00	35	75	69
d 122,000 c. y. Tunnel excav.	6.40	7.00	7.50	7.00	8.00	8.00	8.55	8.00	8.00	9.75	7.50	7.80
e 28[illegible] ft. Large Shaft Excav.	100.00	150.00	110.00	200.00	145.00	65.00	70.00	100 00	125.00	100.00	85.00	113.63
g 29,580 c. y. Brick Masonry	11.00	10.00	11.00	12.00	11.00	11.00	11.75	14.00	12.50	12.00	14.00	11.84
h 8,000 c. y. Concrete—5 to 1	5.00	5.00	6.00	5.00	5.25	6.00	6.00	6.00	6.50	7.00	5.00	5.70
i 2,000 c. y. " 3 to 1	6.00	5.50	6.50	6.00	6.00	7.00	6.50	7.50	8.00	8.00	5.50	6.60
j 18,500 c. y. Rubble Stone	6.00	5.00	6.00	5.00	6.00	7.00	5.80	4.00	7.00	6.00	7.00	5.90
k 6,000 sq. ft. Rubble Facing	20	80	30	75	30	50	14	35	30	15	1.50	48
l 500 c. y. Dry Rubble	7.50	2.50	5.00	2.00	3.50	3.00	3.95	3.00	5.00	4.00	3.75	3.93
m 125 c. y. Rectangular Paving	15.00	2.50	6.00	4.50	3.50	8 00	7.85	8.00	8.00	8.00	6.25	7.05
n 150 c. y. Cut-stone Masonry	50.00	40.00	40.00	40.00	40.00	50.00	30.00	40.00	36.00	35.00	50.00	41.00
o 6,000 sq. ft. Rough Pointing	25	80	12	75	30	40	15	35	50	15	50	39
p 2,500 " 6-cut Work	75	90	20	75	50	80	25	50	2.00	25	58	68
q 250 M. B. M. Timber	50.00	30.00	40.00	30.00	45.00	40.00	45.00	35.00	38.00	35.00	42.00	40.00
r 9,000 lin. ft. Piling	50	25	35	35	40	50	40	35	50	40	23	39
s 2,000 c. y. Masonry in Port. Cement	2.50	1.50	1.00	2.00	2.00	1.00	1.50	1.25	2.50	2.50	1.50	1.75
t 2,000 c. y. Masonry, Am. Cements 1 to 1	1.00	1.25	50	1.50	1.00	75	75	1.00	1.00	1.20	1.00	1.09
u 2,300 c. y. Shaft Filling	75	40	75	40	80	1.00	75	75	1.00	50	1.00	73
v 10,000 lin. ft. Drain Excav.	1.00	1.00	1.50	1.75	80	1.25	90	1.50	3.00	10	2.00	1.35
w 1,000 " " 6" Drain Pipe	30	30	40	40	50	60	60	40	60	10	35	41
w 1,000 " " 8" "	45	40	60	60	65	80	80	60	75	10	50	57
w 1,000 " " 10" "	60	65	75	80	75	1.00	1.00	1.00	1.00	10	85	77
w 1,500 " " 12" "	70	90	87	1.00	1.00	1.25	1.20	1.20	1.25	10	95	95
w 1,500 " " 15" "	1.15	1.25	1.00	1.50	1.25	1.60	1.30	1.30	1.40	10	1.50	1.30
w 1,500 " " 18" "	1.25	1.50	1.20	1.75	1.75	2.00	1.40	1.60	1.60	10	1.85	1.45
x 5,000 c. y. Borrowed Earth	50	30	75	50	60	1.00	60	30	75	10	60	56
Total Estimate	$1,518,475	$1,529,758	$1,637,430	$1,660,283	$1,756,088	$1,771,195	$1,794,841	$1,879,275	$1,907,725	$1,941,925	$2,108,856	$1,773,250

NOTE.—An examination of the total section bids, opened at the above letting, shows a remarkable evenness in the prices of each individual bidder; these prices varying only as required by the slight modifications in the work on the various sections. This being the case we have selected for publication and comparison the detail of bids on a typical Section of the Aqueduct; one containing the bulk of the items and bidders, and answering fully the general purpose of comparing the views of the various bidders on the work let.

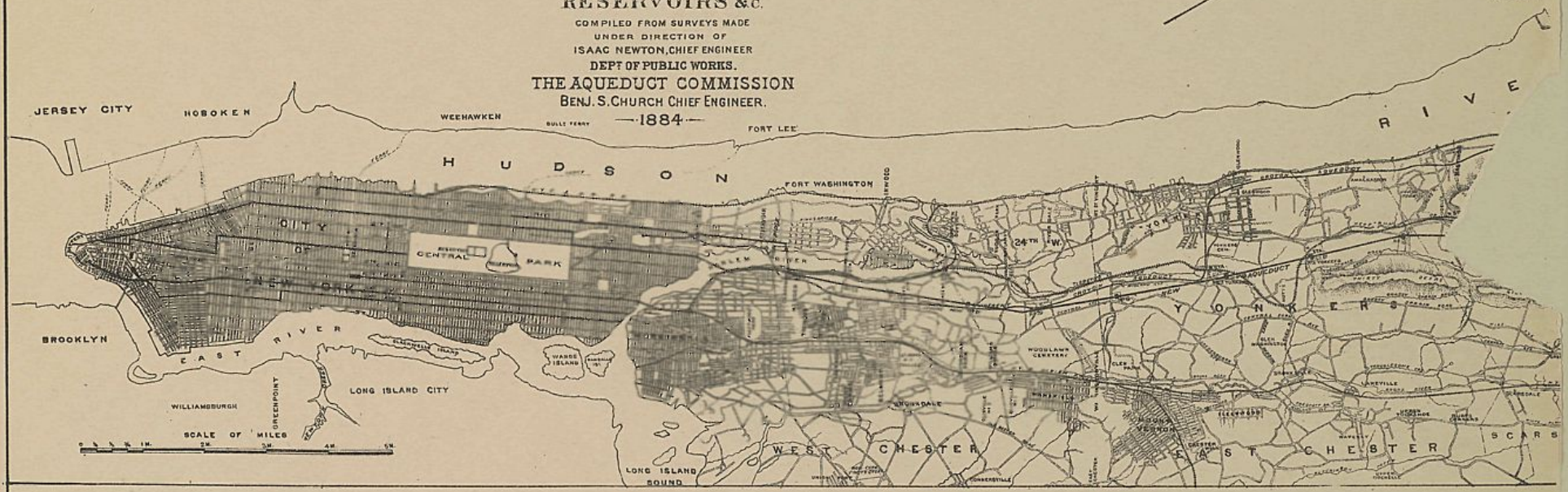
Table of Prices New Croton Aqueduct.

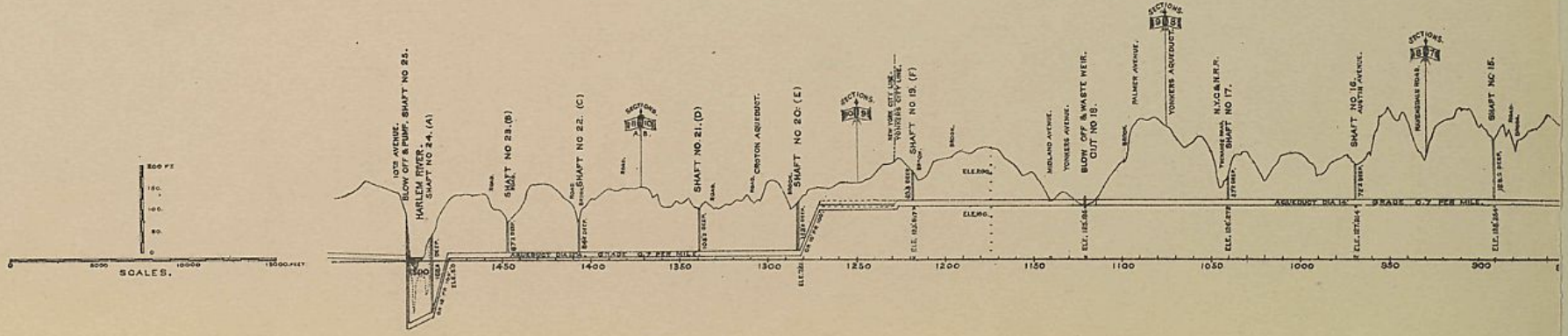
ITEMS.	PRICES OF BROWN, HOWARD & CO.				PRICES OF O'BRIEN & CLARK.				ITEMS.	PRICES OF HEMAN CLARK.	
	SEC. 2	SEC. 3	SEC. 4	SEC. 5	SEC. 6	SEC. 7	SEC. 8	SEC. 9		SEC. A.	SEC. B.
a Rock excav. in open trench per c. y	.....	.....	$2 00	$2 50	$1 75	$1 75	$1 75	$2 00	*a* Rock excav. in open trench per c. y	$1 75	$1 75
b Earth excav. in open trench per c. y	.....	.....	90	1 75	80	80	80	80	*b* Earth excav. in open trench per c, y	50	50
c Soiling per c. y	75	75	75	75	40	40	40	40	*c* Soiling per c. y	50	50
d Tunnel excav. per c. y	$7 00	$6 50	6 40	6 25	7 00	7 00	7 00	6 75	*d* Tunnel excav. per c. y	7 00	7 50
e Large shaft excav. per lin. ft	120 00	100 00	100 00	100 00	150 00	150 00	150 00	150 00	*e* Large shaft excav. per lin. ft	150 00	150 00
f Small shaft excav. per lin. ft	60 00	.....	.....	90 00	140 00	140 00	140 00	140 00	*f* Small shaft excav. per lin. ft	.....	140 00
g Brick masonry per c. y	11 00	10 00	11 00	11 00	10 00	10 00	10 00	10 00	*g* Brick masonry for lining per c. y	10 00	10 00
h Concrete masonry 5 parts stone 1 part cement per c. y	5 75	5 75	5 00	5 50	5 00	5 00	5 00	5 00	*h* Concrete masonry for lining 5 stone 1 cement per c y	5 00	5 00
i Concrete masonry 3 parts stone 1 part cement per c. y	6 75	6 75	6 00	6 50	5 50	5 50	5 50	5 25	*i* Concrete masonry for lining 3 stone 1 cement per c. y	5 50	5 50
j Rubble stone masonry per c. y	5 00	5 00	6 00	5 50	5 00	5 00	5 00	5 00	*j* Rubbie stone masonry for lining per c. y	5 00	5 00
k Face work for rubble stone per sq. ft	.....	.....	20	.....	.....	80	.....	80	*k* Cut stone laid per c. y	40 00	40 00
l Dry stonemasonry and paving per c. y	.....	.....	7 50	.....	.....	2 00	.....	2 00	*l* Brick masonry for backing per c. y	.....	.....
m Rectangular paving per c. y	.....	.....	15 00	.....	.....	2 50	.....	2 50	*m* Concrete masonry for backing 5 stone 1 cement per c. y	.....	.....
n Cut stone masonry per c. y	60 00	60 00	50 00	60 00	40 00	40 00	40 00	35 00	*n* Concrete masonry for backing 3 stone 1 cement per c. y	.....	.....
o Rough pointed face for cut stone masonry per sq. ft	.....	.....	25	.....	.....	80	.....	80	*o* Rubble stone masonry for backing per c. y	.....	.....
p Fine Hammered face (six cut) for cut stone per sq. ft	.....	.....	75	.....	.....	90	.....	90	*p* Additional for all kinds of masonry laid in Portland cement mortar per c. y	1 50	1 50
q Timber placed and fastened B. M. per M	.....	.....	50 00	50 00	30 00	30 00	30 00	30 00	*q* Additional for all kinds of masonry laid in American cement mortar 1 to 1 per c.y	1 25	1 25
r Piles driven and prepared per l'n. ft	.....	.....	50	50	25	25	25	25	*r* Shaft filling per c. y	40	40
s Additional for all kinds of masonry laid in Portland cement mortar per c. y	2 50	2 50	2 50	2 50	1 50	1 50	1 00	1 50	*s* Drain excav. per lin. ft	1 00	1 00
t Additional for all kinds of masonry laid in American cement mortar 1 to 1 per c. y	1 00	1 00	1 00	1 00	1 25	1 25	1 25	1 50	*t* Tile drain six inch per lin. ft	30	30
u Shaft filling per c. y	1 00	80	75	75	40	40	40	40	*t* Tile drain eight inch per lin. ft	40	40
v Drain excav. per c. y	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	*t* Tile drain ten inch per lin. ft	65	65
w Tile drain six inch per lin. ft	30	30	30	30	30	30	30	40	*t* Tile drain twelve inch per lin. ft	90	90
w Tile drain eight inch per lin. ft	45	45	45	45	40	40	40	65			
w Tile drain ten inch per lin. ft	60	60	60	60	65	65	65	90			
w Tile drain twelve inch per lin. ft	70	70	70	70	90	90	90	90			
w Tile drain fifteen inch per lin. ft	1 15	1 15	1 15	1 15	1 25	1 25	1 25	1 25			
w Tile drain eighteen inch per lin. ft	1 25	1 25	1 25	1 25	1 50	1 50	1 50	1 50			
x Borrowed earth per c. y	.....	.....	50	.....	.....	.....	.....	40			

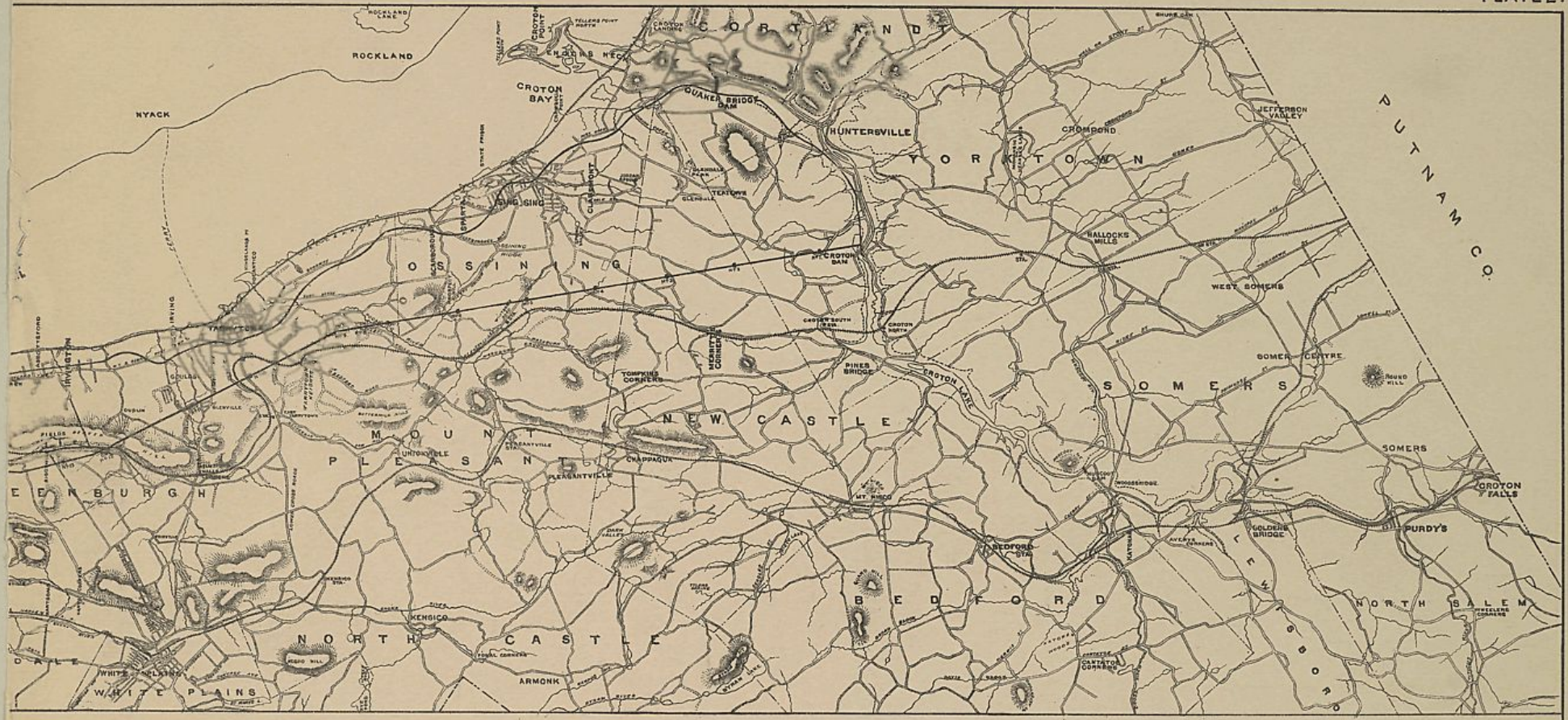
SHEET Nº1

MAP
SHOWING
THE ROUTE
OF THE
NEW AQUEDUCT
FROM
CENTRAL PARK TO CROTON DAM
TOGETHER WITH PROPOSED
RESERVOIRS &c.

COMPILED FROM SURVEYS MADE
UNDER DIRECTION OF
ISAAC NEWTON, CHIEF ENGINEER
DEPT OF PUBLIC WORKS.
THE AQUEDUCT COMMISSION
BENJ. S. CHURCH CHIEF ENGINEER.
—1884—







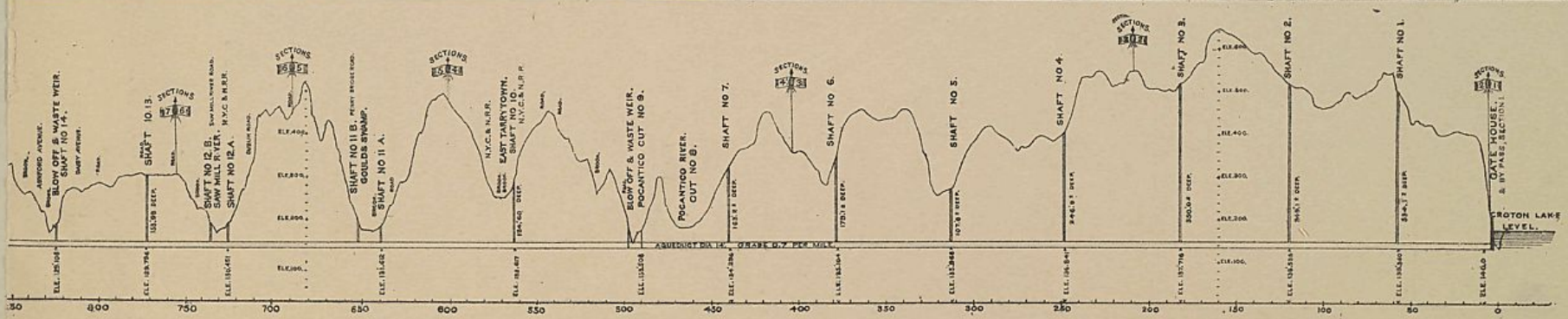

BLOW OFF & WASTE WEIR. SHAFT NO 14.
SHAFT NO 13.
SHAFT NO 12 B. SAW MILL R. VER.
SHAFT NO 12 A.
SHAFT NO 11 B. GOULDS SWAMP.
SHAFT NO 11 A.
EAST TARRYTOWN. SHAFT NO 10.
BLOW OFF & WASTE WEIR. POCANTICO CUT NO 9.
POCANTICO RIVER. CUT NO 8.
SHAFT NO 7.
SHAFT NO 6.
SHAFT NO 5.
SHAFT NO 4.
SHAFT NO 3.
SHAFT NO 2.
SHAFT NO 1.
GATE HOUSE. & BY PASS. SECTION 1
CROTON LAKE LEVEL.
AQUEDUCT DIA 14'. GRADE 0.7 PER MILE.

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

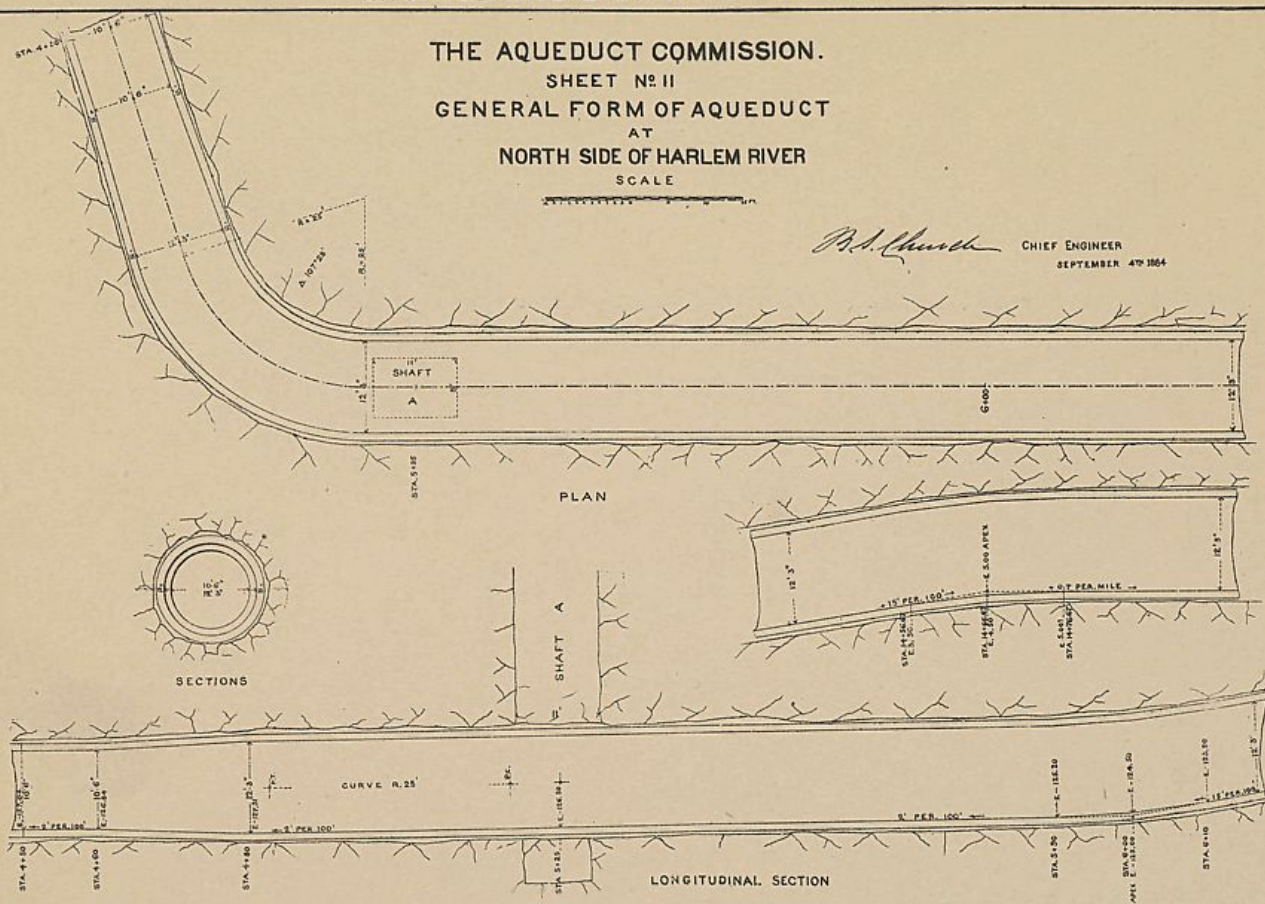
THE AQUEDUCT COMMISSION.

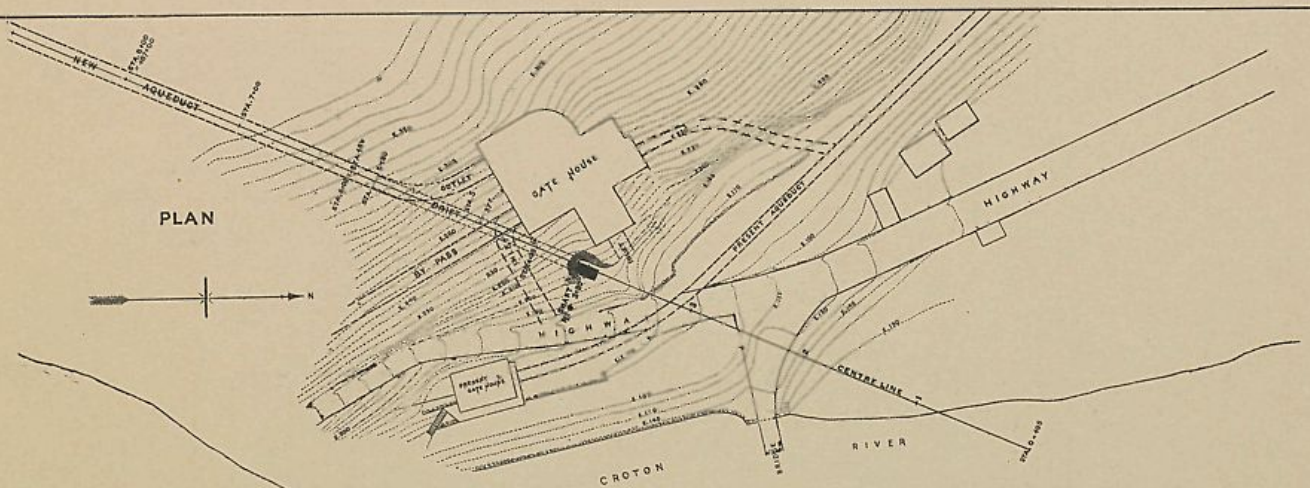
SHEET № II

GENERAL FORM OF AQUEDUCT AT NORTH SIDE OF HARLEM RIVER

SCALE

B. H. Church CHIEF ENGINEER
SEPTEMBER 4TH 1864

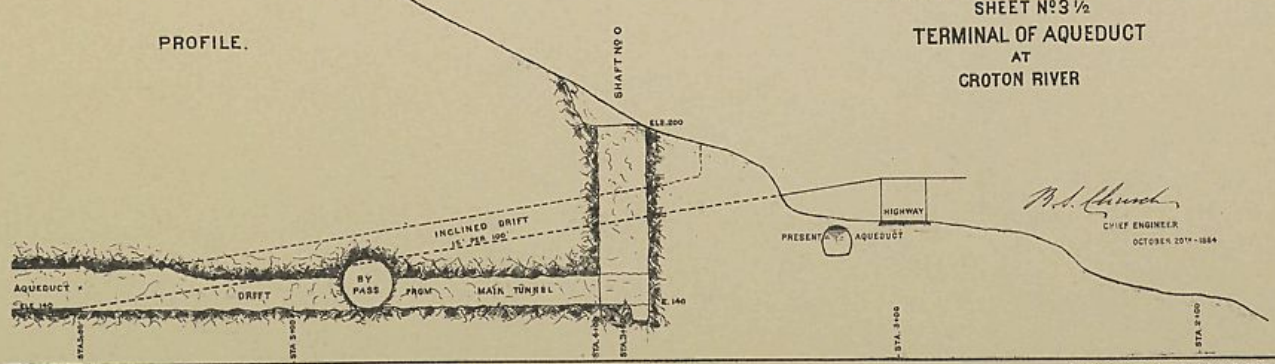




THE AQUEDUCT COMMISSION

SHEET № 3 ½

TERMINAL OF AQUEDUCT AT CROTON RIVER



B. H. Church CHIEF ENGINEER
OCTOBER 20TH 1864

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

THE AQUEDUCT COMMISSION.

SHEET № 4

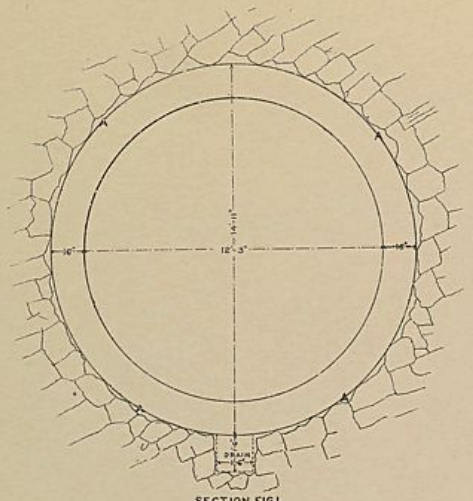
SECTIONS SHOWING
TUNNEL EXCAVATION AND MASONRY

SCALE

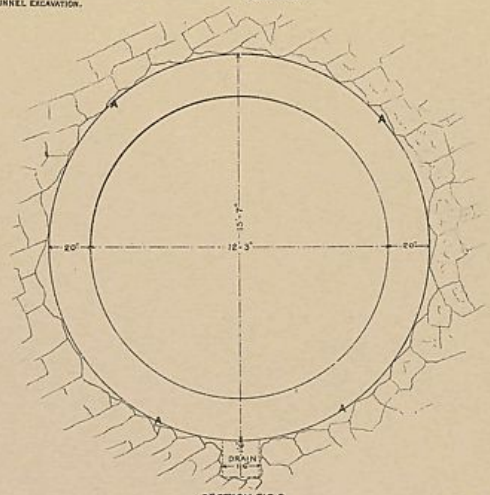
NOTE.

LINE A.A.A' IS THE NEAT GROSS-SECTION LINE OF THE TUNNEL EXCAVATION.

B. S. Church CHIEF ENGINEER
SEPT. 6TH 1884



SECTION FIG.1

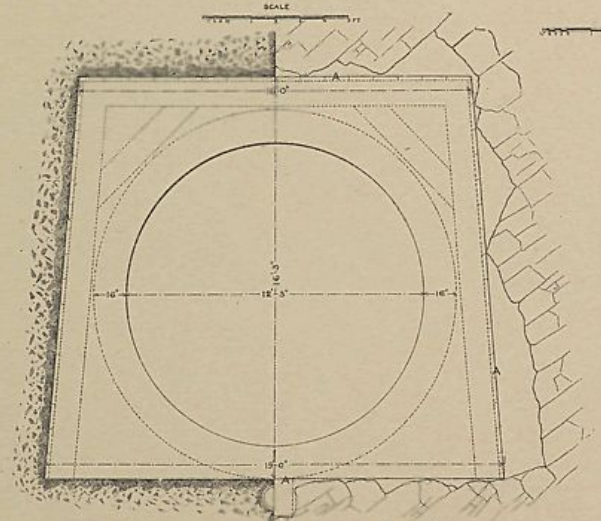


SECTION FIG.2

SHEET № 4½

SECTION SHOWING
TUNNEL EXCAVATION AND MASONRY

SCALE



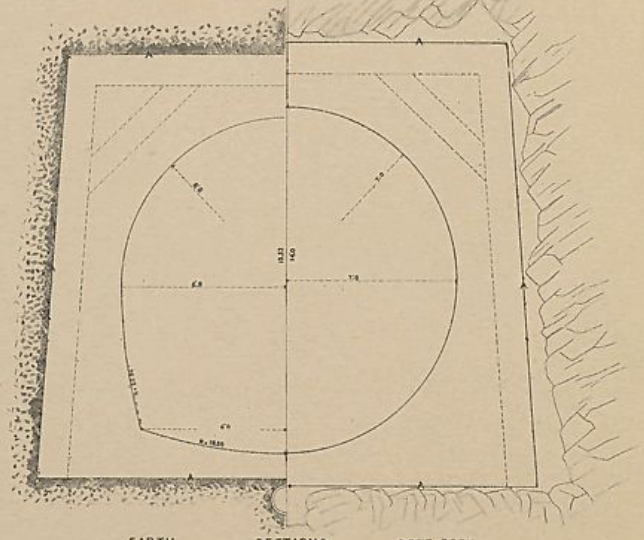
EARTH SECTION SOFT ROCK

SHEET № 16

SECTIONS SHOWING
TUNNEL EXCAVATION AND MASONRY.

B. S. Church
CHIEF ENGINEER
OCTOBER 20TH 1884

SCALE



EARTH FIG. 1 SECTIONS SOFT ROCK FIG. 2

ENGINEERING DRAWINGS AND DATA.

PLATE 4.

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

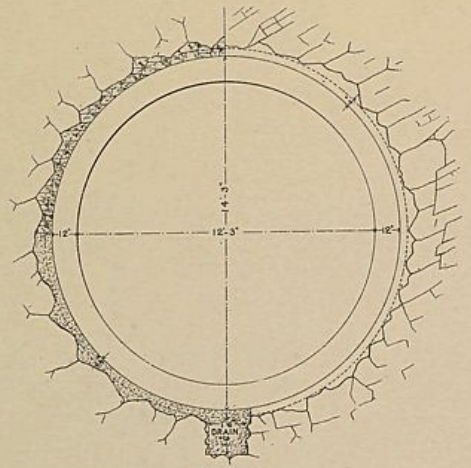
THE AQUEDUCT COMMISSION

SHEET Nº5

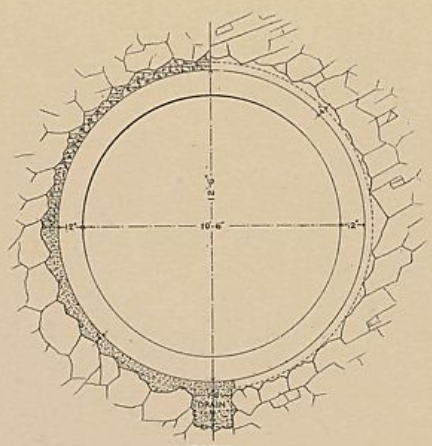
AQUEDUCT IN ROCK TUNNEL

SCALE

B. D. Thurston CHIEF ENGINEER
SEPT. 4TH 1884.



SECTION
FIG.1.

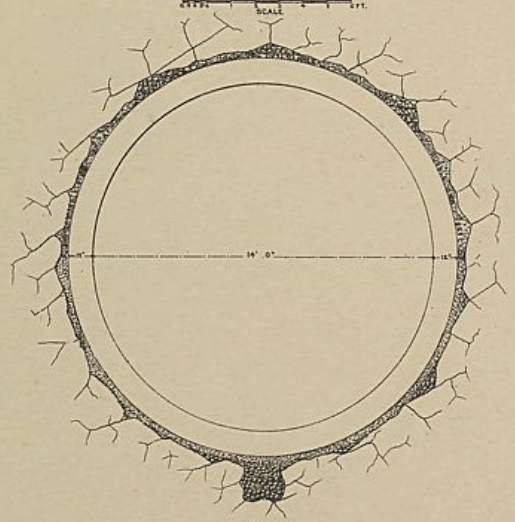


SECTION
FIG.2.

SHEET Nº6
AQUEDUCT IN
ROCK TUNNEL

UNDER PRESSURE
D TO C

SCALE

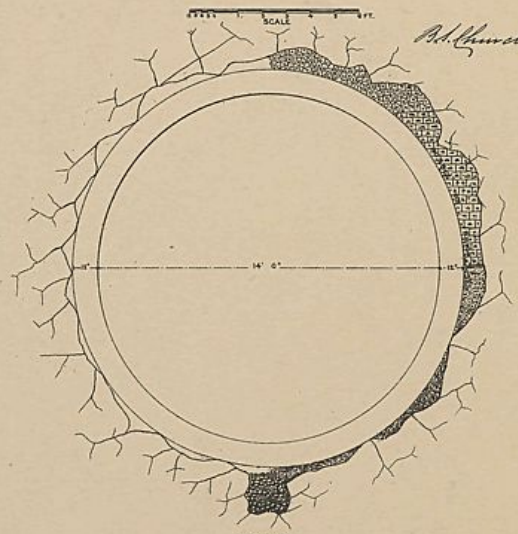


SECTION

SHEET Nº6½
AQUEDUCT IN
ROCK TUNNEL

SCALE

B. D. Thurston CHIEF ENGINEER
OCTOBER 25TH 1884.



SECTION

ENGINEERING DRAWINGS AND DATA.

PLATE 5.

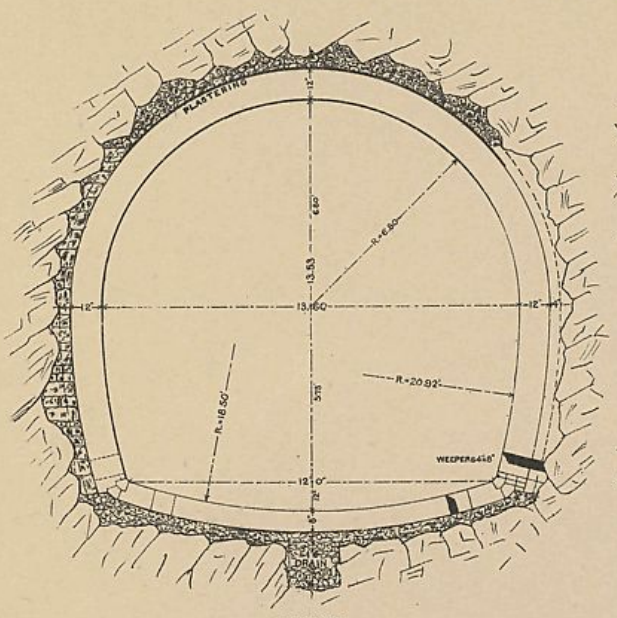
PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

THE AQUEDUCT COMMISSION.

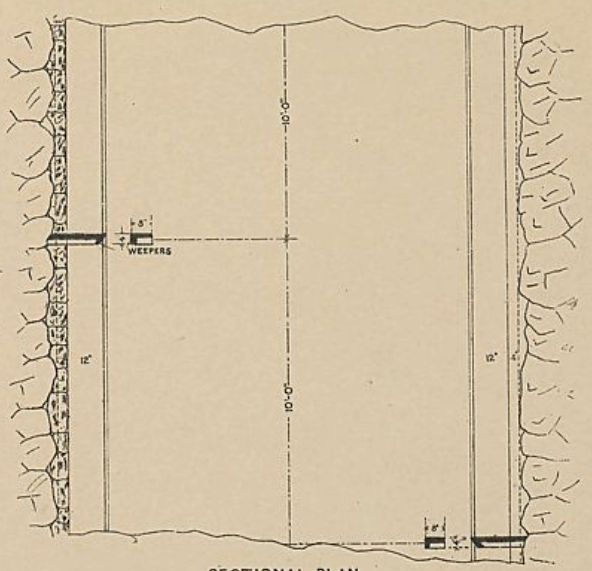
SHEET Nº 7
AQUEDUCT IN
ROCK TUNNEL WITH WEEPERS.

SCALE

B. S. Church CHIEF ENGINEER
SEPT. 4TH. 1884



SECTION

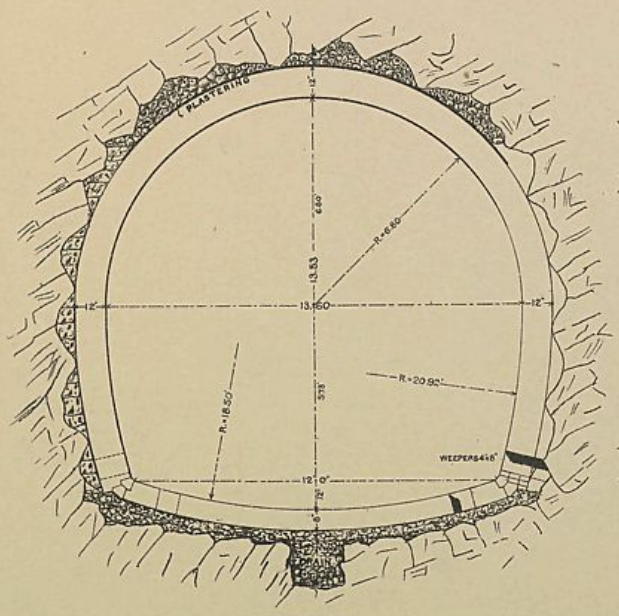


SECTIONAL PLAN

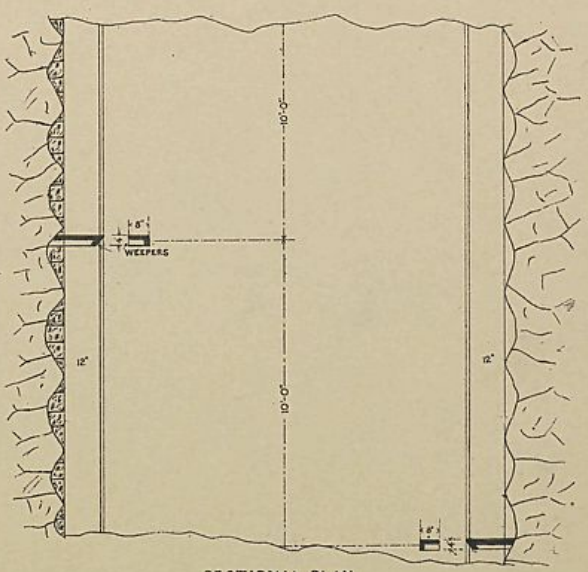
SHEET Nº 7½
AQUEDUCT IN
ROCK TUNNEL WITH WEEPERS.

SCALE

B. S. Church CHIEF ENGINEER
OCTOBER 20TH. 1884



SECTION



SECTIONAL PLAN

9-1-84

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

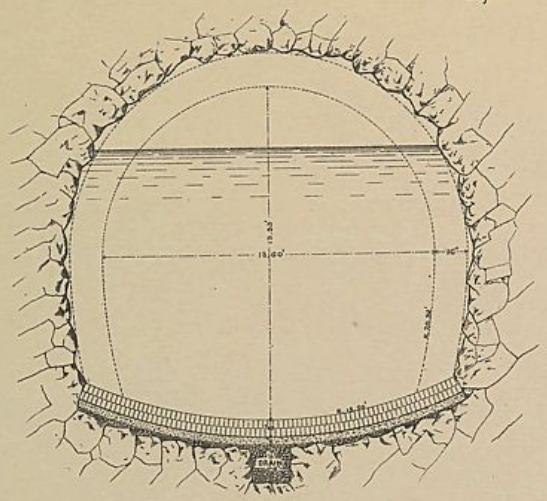
THE AQUEDUCT COMMISSION.

SHEET Nº 8.

AQUEDUCT WITHOUT MASONRY,
(EXCEPT FLOOR.)

SCALE

B. S. Church CHIEF ENGINEER.
SEPTEMBER, 4TH 1884.



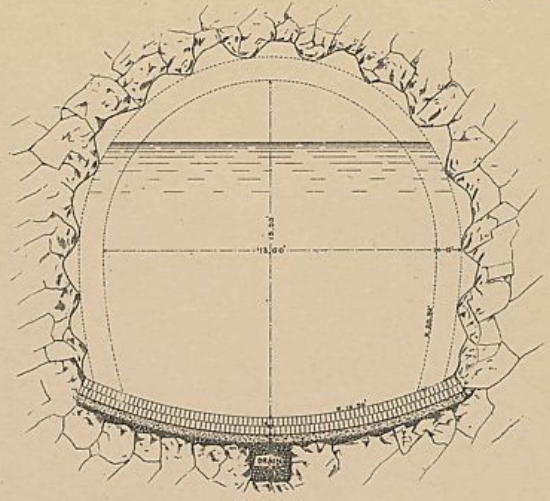
SECTION

SHEET Nº 8¼

AQUEDUCT WITHOUT MASONRY,
(EXCEPT FLOOR.)

SCALE

B. S. Church CHIEF ENGINEER
OCTOBER 20TH 1884.



SECTION

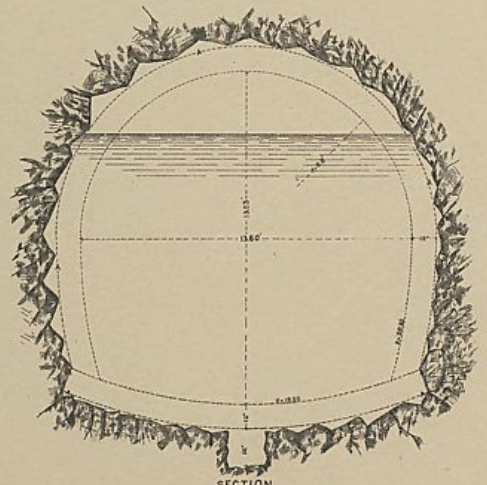
SHEET Nº 8½.

SECTION SHOWING
TUNNEL MASONRY.

SCALE.

NOTE.

LINE AAA IS THE LINE OF THE CROSS-SECTION OF THE TUNNEL EXCAVATION.

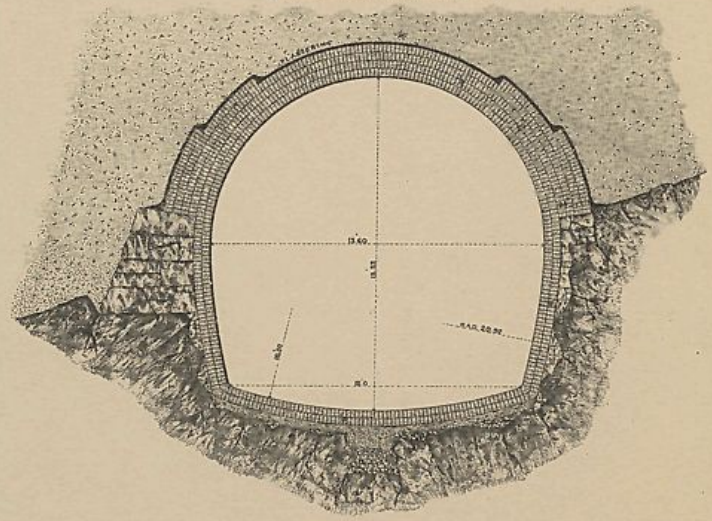


SECTION

SHEET Nº 25.

AQUEDUCT IN EARTH AND ROCK

SCALE



SECTION

ENGINEERING DRAWINGS AND DATA.

PLATE 7.

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

THE AQUEDUCT COMMISSION.

NOTE.

LINE A. A. A. IS THE NEAT GROSS-SECTION LINE OF THE TUNNEL EXCAVATION.

SHEET No. 9

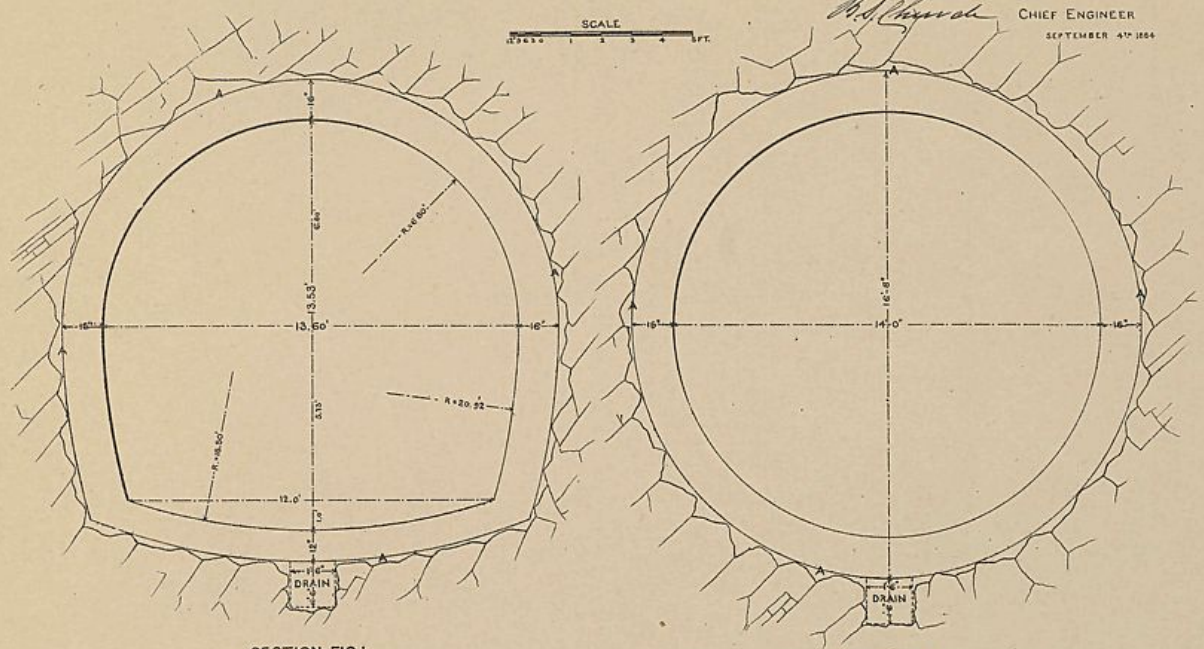
SECTIONS SHOWING

TUNNEL EXCAVATION AND MASONRY

B. H. Chapin Chief Engineer

September 4th 1884

SCALE.



SECTION FIG. 1

SECTION FIG. 2

NOTE.

LINE A. A. A. IS THE LINE OF THE CROSS-SECTION OF THE TUNNEL EXCAVATION.

SHEET No. 9½

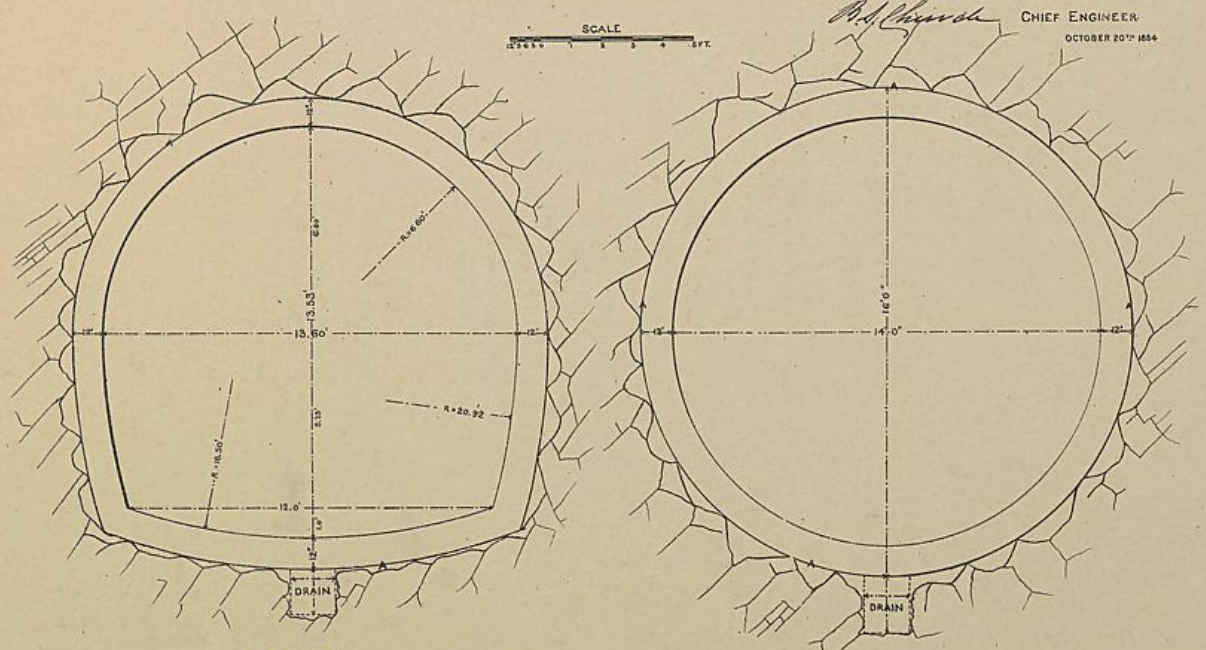
SECTIONS SHOWING

TUNNEL EXCAVATION AND MASONRY

B. H. Chapin Chief Engineer

October 20th 1884

SCALE.



SECTION FIG. 1

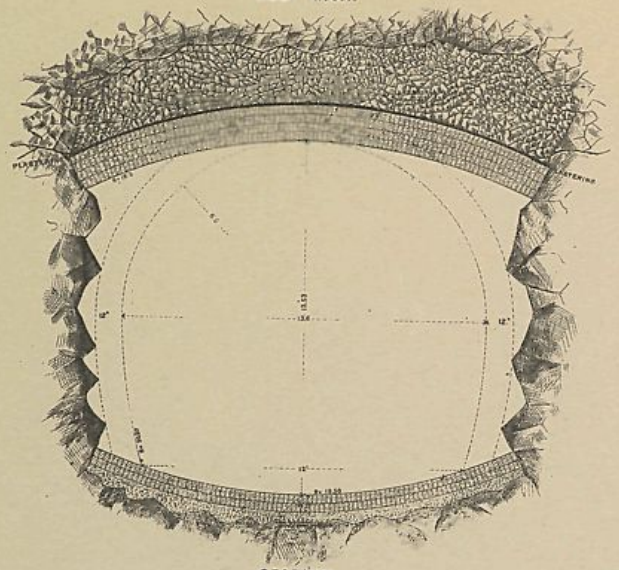
SECTION FIG. 2

PHOTO-LITH: BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

THE AQUEDUCT COMMISSION

SHEET Nº 17

AQUEDUCT IN ROCK TUNNEL WITH ROOF ARCH.

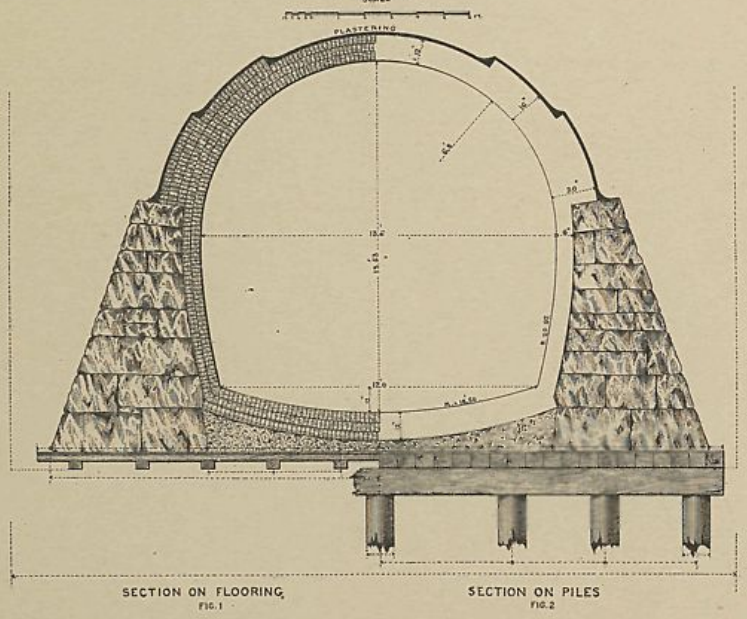


SECTION

SHEET Nº19

AQUEDUCT IN OPEN CUT OR TRENCH.

SCALE



SECTION ON FLOORING. FIG. 1

SECTION ON PILES FIG. 2

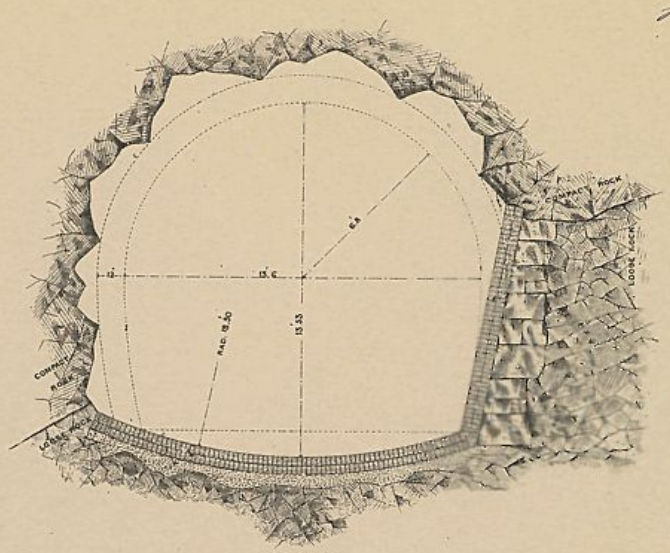
SHEET Nº18

AQUEDUCT IN ROCK TUNNEL

SCALE

CHIEF ENGINEER

OCTOBER 25TH 1884.

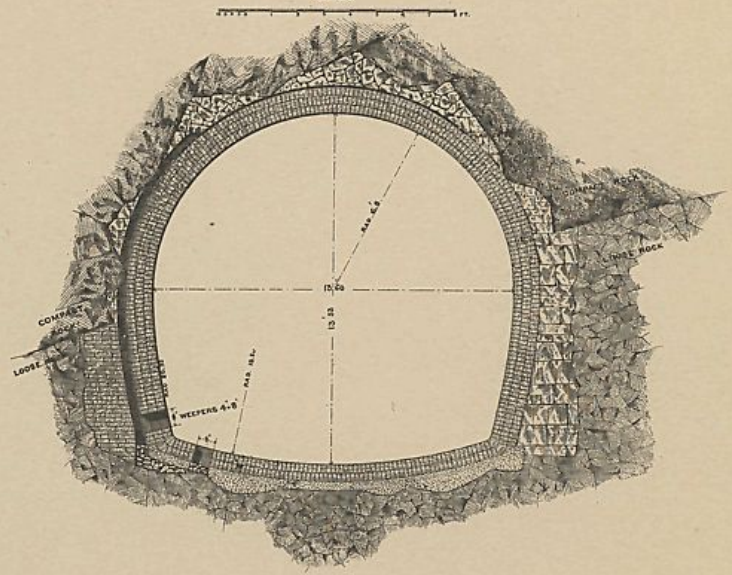


SECTION

SHEET Nº20

AQUEDUCT IN COMPACT AND LOOSE ROCK

SCALE



SECTION

ENGINEERING DRAWINGS AND DATA.

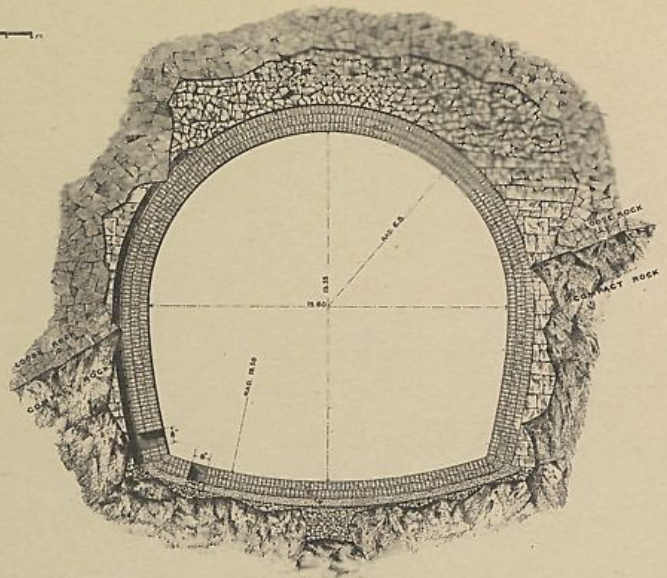
PLATE 9.

PHOTO-LITH. BY ROBERT A. WELCH, 178 WILLIAM ST. N.Y.

THE AQUEDUCT COMMISSION

SHEET Nº21
AQUEDUCT IN COMPACT AND LOOSE ROCK

SCALE

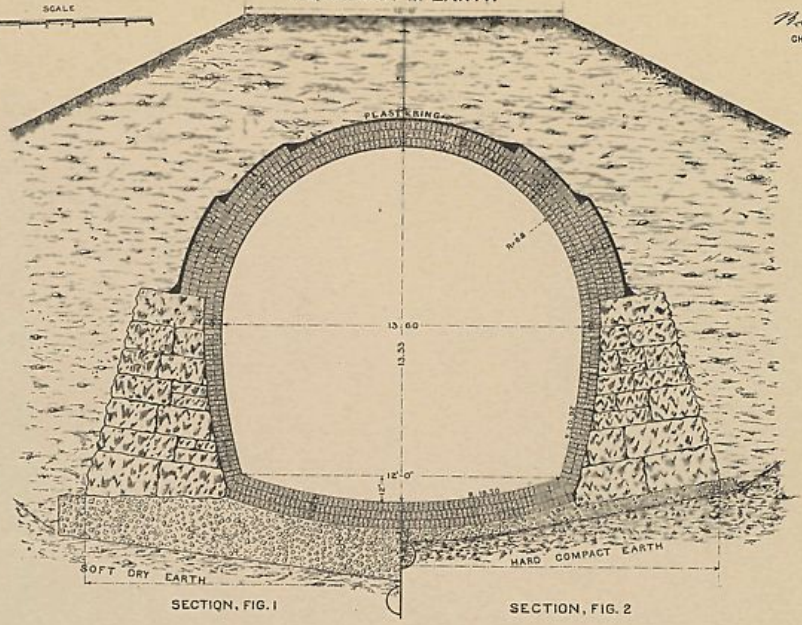


SECTION

SHEET Nº 22
AQUEDUCT IN EARTH

SCALE

M. L. Hinrichs
CHIEF ENGINEER
OCTOBER 20TH 1884



SECTION, FIG. 1 SECTION, FIG. 2

SHEET Nº 23
AQUEDUCT IN EARTH.

SCALE

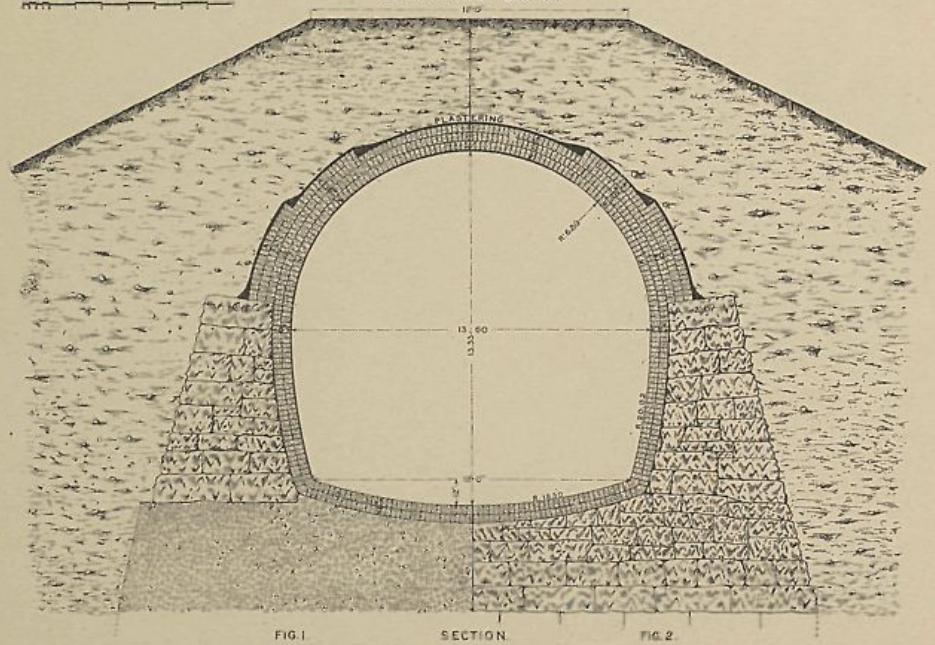
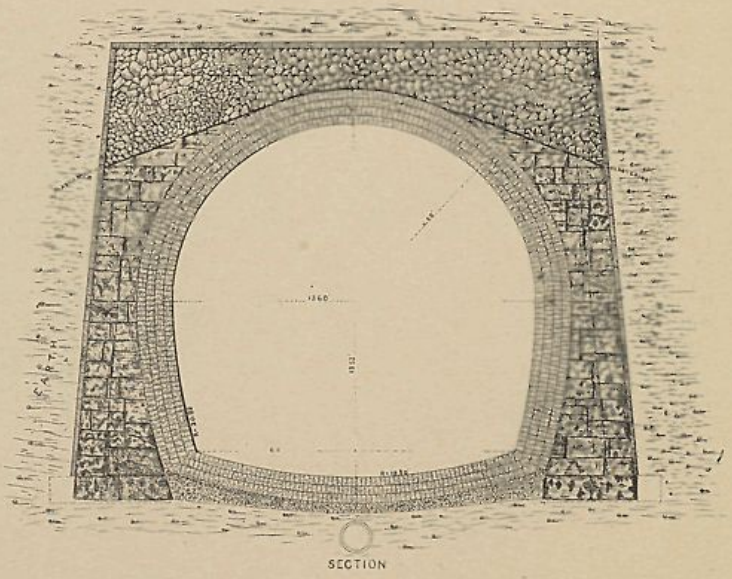


FIG. 1 SECTION FIG. 2

SHEET Nº 24.
AQUEDUCT IN TUNNEL REQUIRING SUPPORT.

SCALE



SECTION

ENGINEERING DRAWINGS AND DATA.

PLATE 10.

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

THE AQUEDUCT COMMISSION

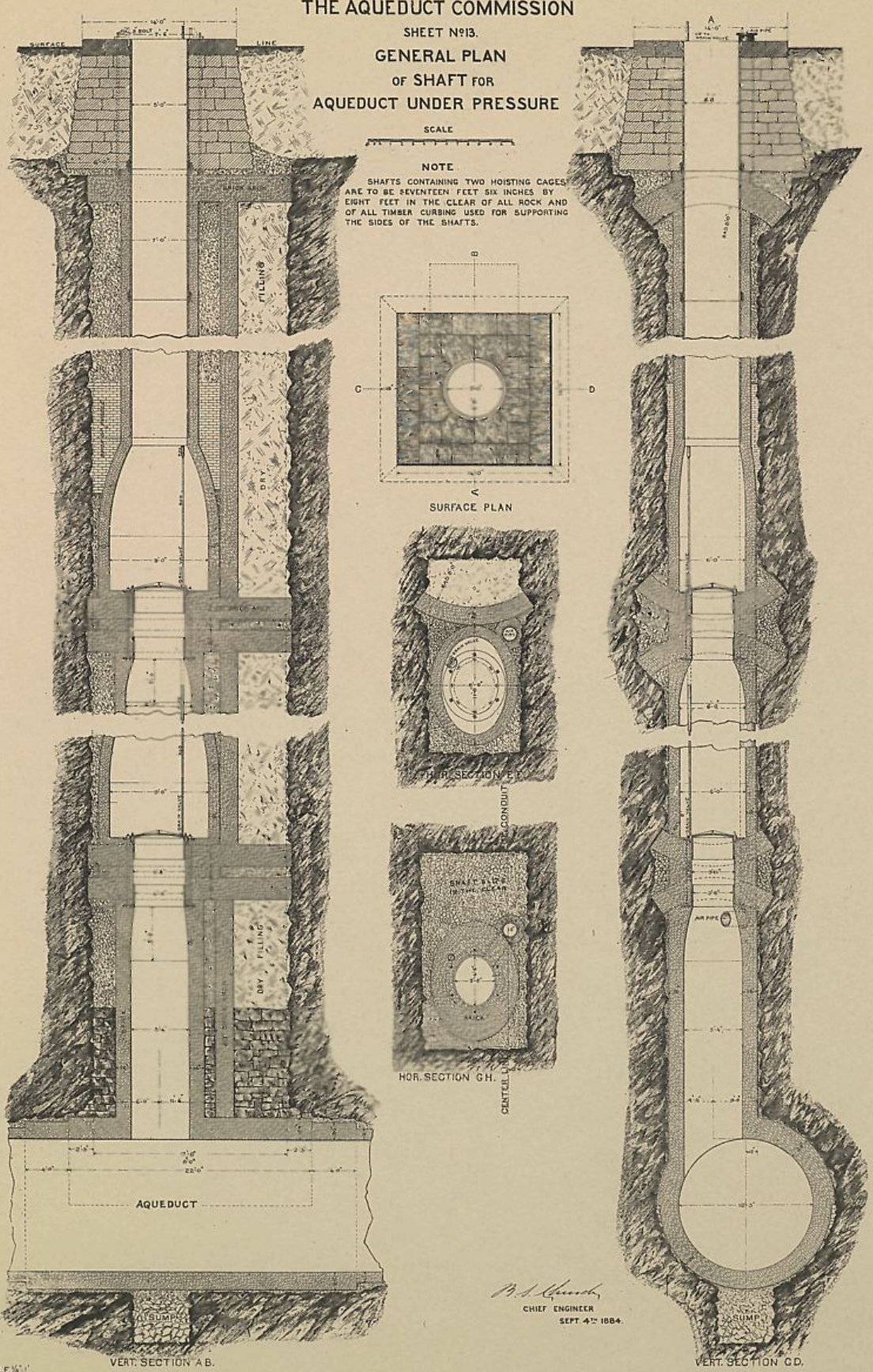
SHEET Nº13.

GENERAL PLAN OF SHAFT FOR AQUEDUCT UNDER PRESSURE

SCALE

NOTE

SHAFTS CONTAINING TWO HOISTING CAGES ARE TO BE SEVENTEEN FEET SIX INCHES BY EIGHT FEET IN THE CLEAR OF ALL ROCK AND OF ALL TIMBER CURBING USED FOR SUPPORTING THE SIDES OF THE SHAFTS.



SCALE

CHIEF ENGINEER
SEPT 4TH 1884.

8-19-84

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

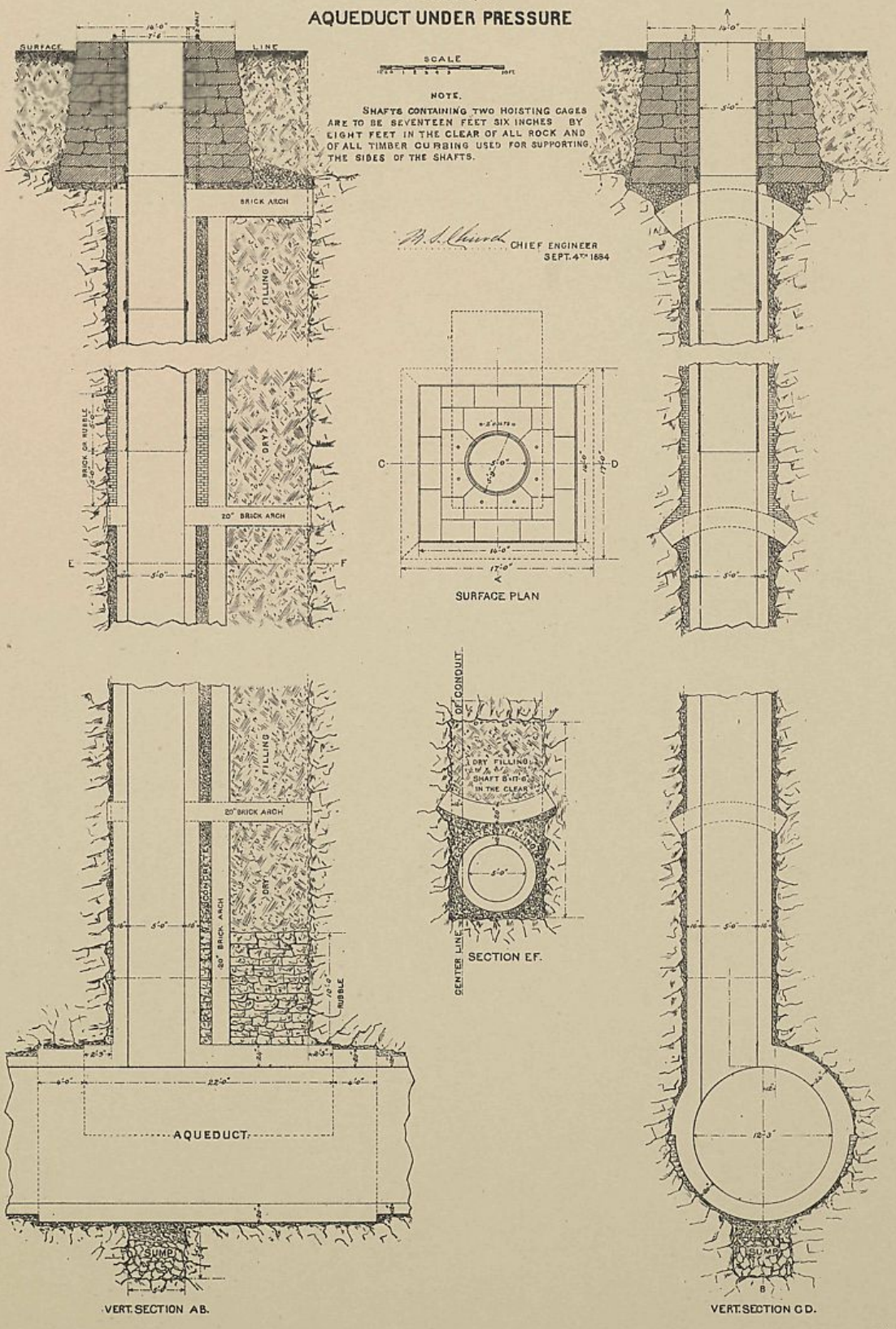
THE AQUEDUCT COMMISSION

SHEET No. 14

GENERAL PLAN

OF SHAFT, FOR

AQUEDUCT UNDER PRESSURE



8-12-84.

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

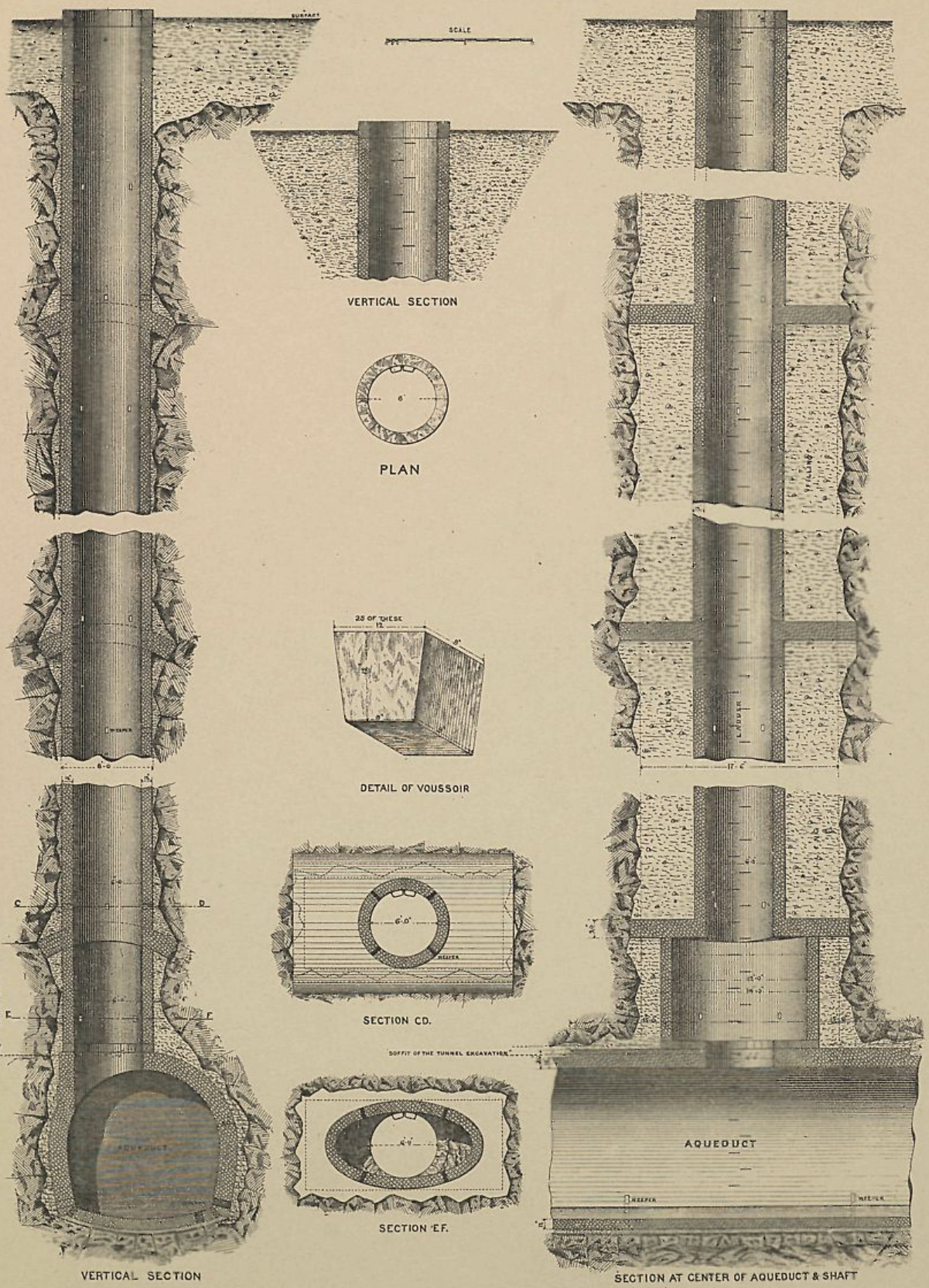
THE AQUEDUCT COMMISSION

SHEET No 15

MASONRY FOR SHAFTS.

CHIEF ENGINEER

OCTOBER 20th 1884



10-17-84

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

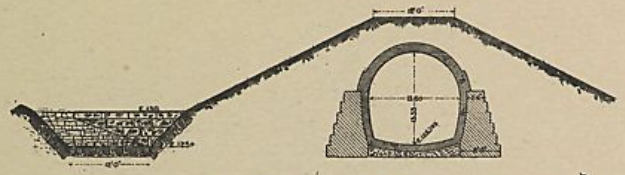
THE AQUEDUCT COMMISSION

SHEET No 31

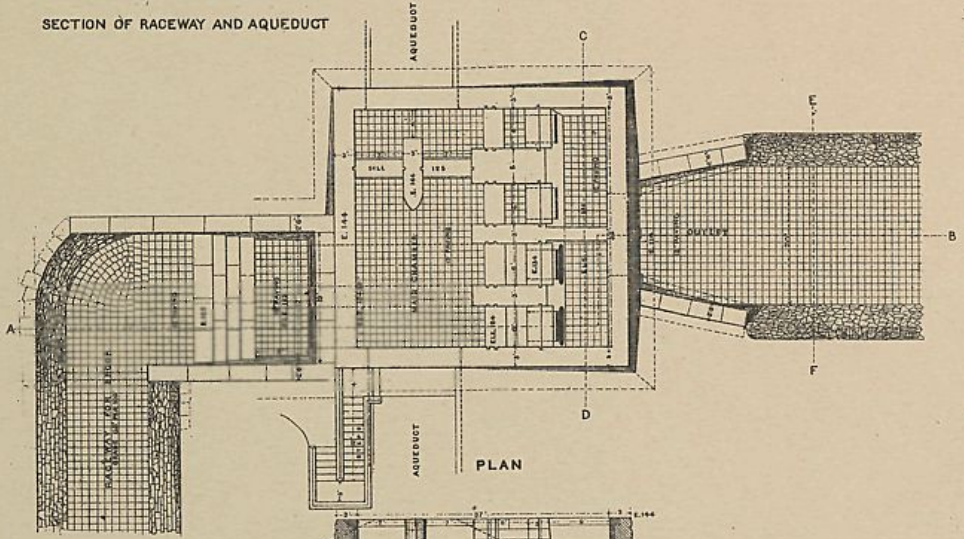
TIBBET'S BROOK BLOW-OFF AND WASTE WEIR

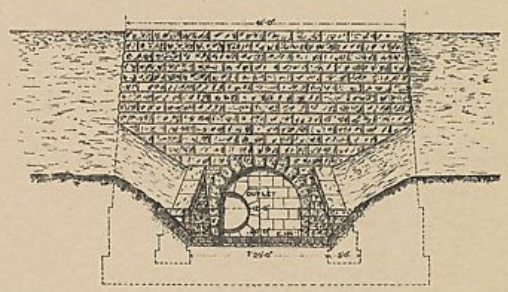
NEAR

SOUTH YONKERS N.Y.

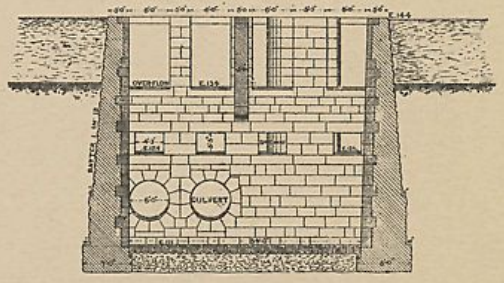


SECTION OF RACEWAY AND AQUEDUCT

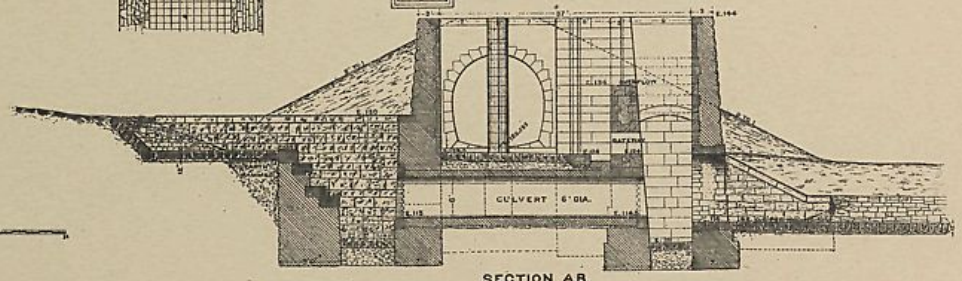




SECTION E.F.



SECTION C.D.



SECTION A.B.

CHIEF ENGINEER

OCTOBER 20TH - 1884.

ENGINEERING DRAWINGS AND DATA.

PLATE 14.

10-8-84

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

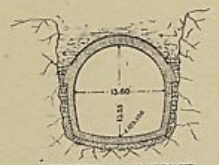
THE AQUEDUCT COMMISSION

SHEET Nº28

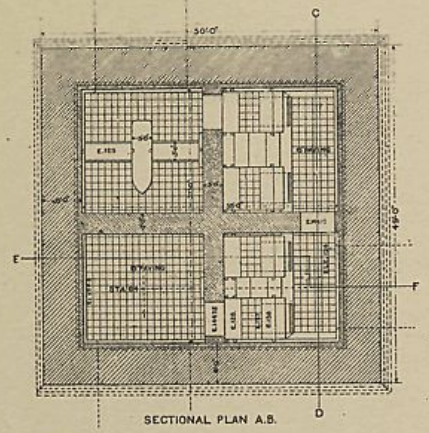
SAWMILL RIVER BLOW OFF AND WASTE WEIR

NEAR

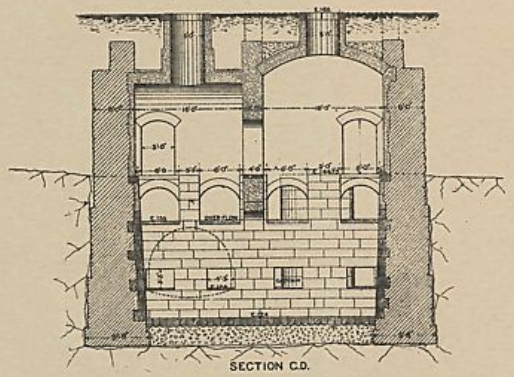
ARDSLEY (FORMERLY ASHFORD) N.Y.



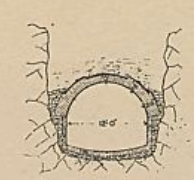
SECTION OF AQUEDUCT



SECTIONAL PLAN A.B.



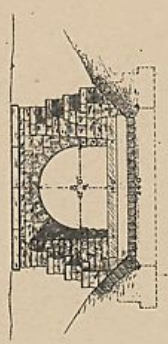
SECTION C.D.



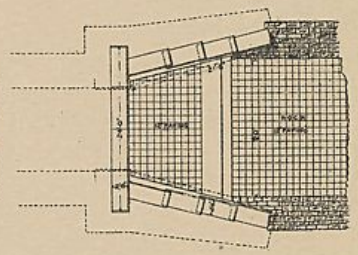
SECTION G.H.

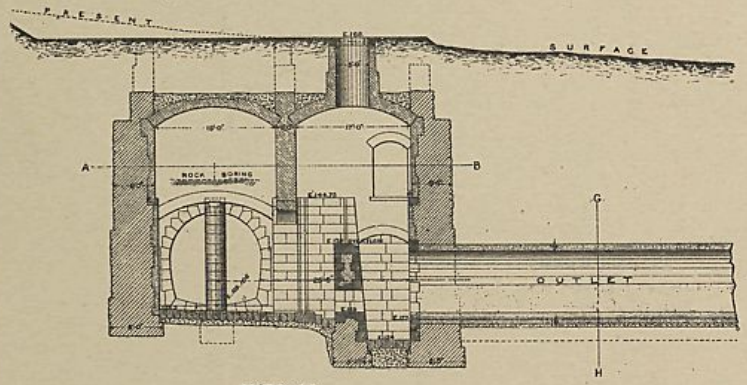
SHOWING CONSTRUCTION IN ROCK IF ANY

SECTION I.J.

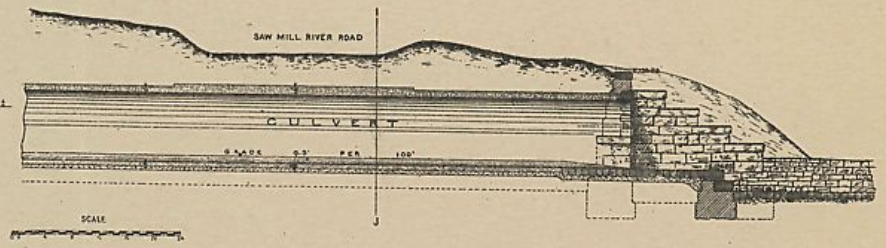


FACADE OF CULVERT





SECTION E.F.



CHIEF ENGINEER

OCTOBER 20TH 1884.

ENGINEERING DRAWINGS AND DATA.

PLATE 15.

10-3-84.

PHOTO-LITH. BY ROBERT A. WELCKE, 178 WILLIAM ST. N.Y.

THE AQUEDUCT COMMISSION

SHEET № 26

POCANTICO BLOW OFF AND WASTE WEIR.

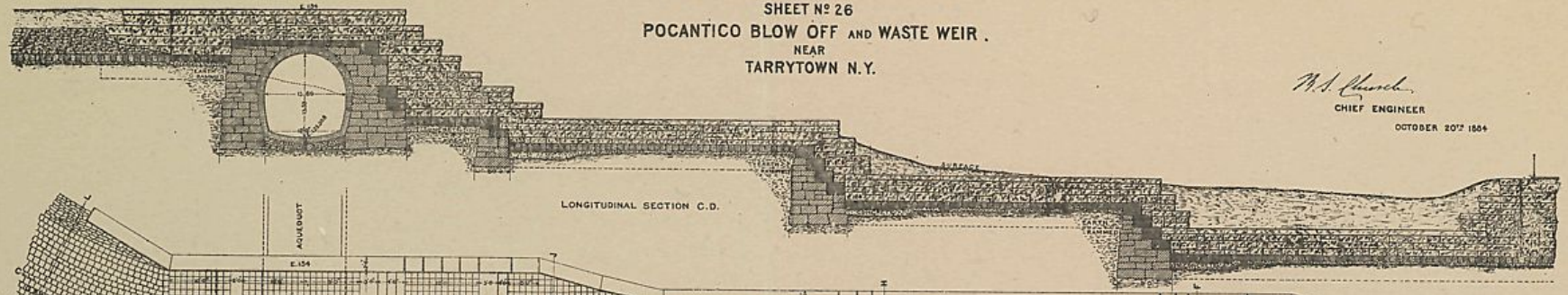
NEAR

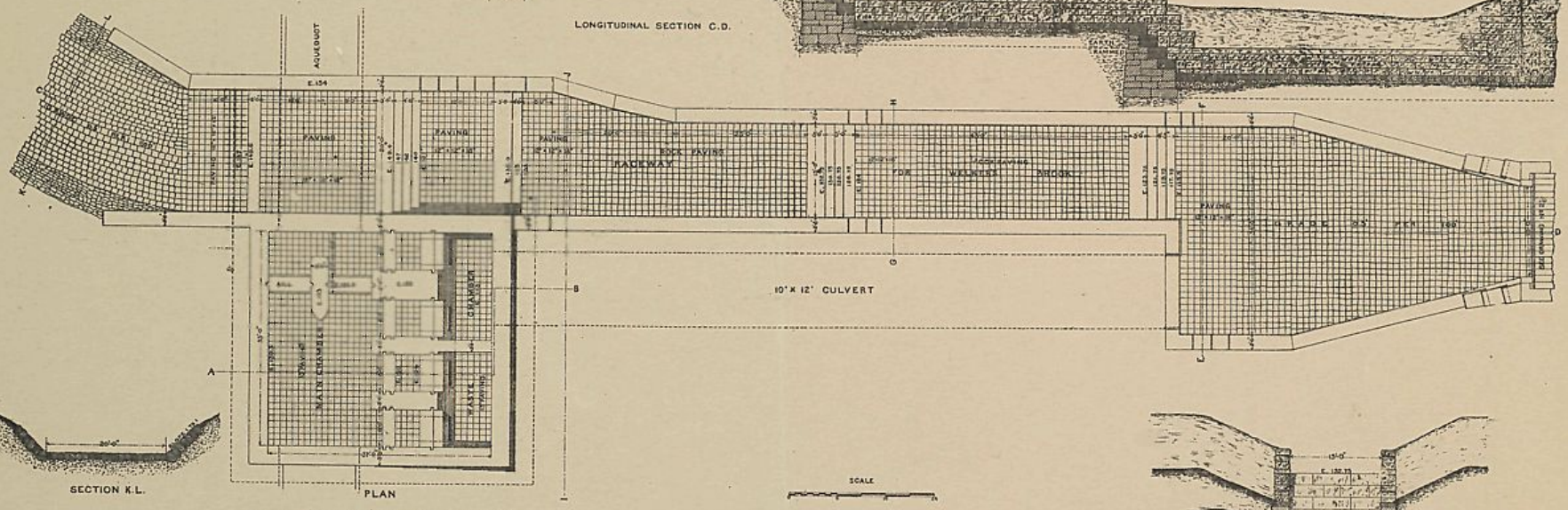
TARRYTOWN N.Y.

W. S. Church

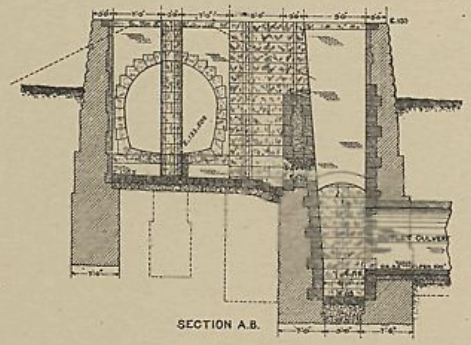
CHIEF ENGINEER

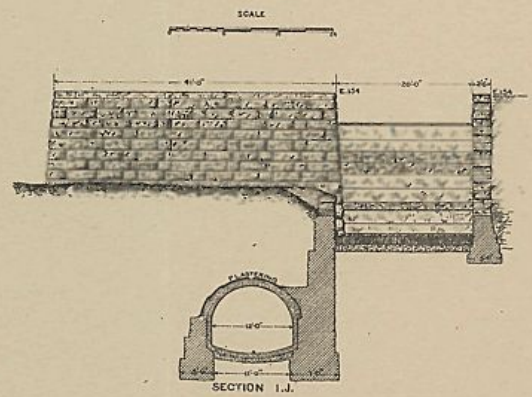
OCTOBER 20TH 1884

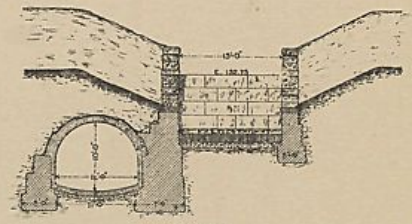


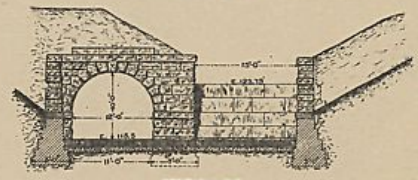


PLAN









ENGINEERING DRAWINGS AND DATA.

PLATE 16.

10-8-84.

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